Society of Medical Education & Research

2022, Volume 2, Issue 1, Page No: 37-41

Archive of International Journal of Cancer and Allied Science

Ewing's Sarcoma in a 58-Year-Old Man: Challenges of Cancer Diagnosis During the COVID-19 Era

Damian Mojsak[1], Michał Dębczyński[1*], Beata Kuklińska[1], Robert M. Mróz[1]

[1] 2nd Department of Lung Diseases and Tuberculosis, Medical University of Białystok, Poland.

***E-mail** ✉ michal.debczynski@gmail.com

Abstract

Ewing's sarcoma, a rare and highly aggressive tumor, is prone to recurrence even after extensive surgery and often metastasizes early. Typically seen in children and adolescents aged 10–20 years, it affects older individuals in approximately 30% of cases. This report details a 58-year-old man presenting with a foot tumor, back pain, and left leg discomfort. A chest x-ray revealing a lung mass led to a referral to the Pulmonology Department, but the diagnosis was delayed for months, worsening the prognosis of this aggressive malignancy. The COVID-19 pandemic has significantly disrupted global healthcare, redirecting resources and delaying the diagnosis of non-COVID conditions. This has resulted in more patients presenting with advanced disease, limiting treatment options. Patient fear of infection further complicates timely diagnosis. This case underscores the impact of the pandemic on oncology care.

Keywords: Ewing sarcoma, COVID-19, Delayed diagnosis, Metastasis, Lung neoplasms

Introduction

Ewing's sarcoma (ES), a rare, highly malignant small round cell tumor, is part of Ewing's sarcoma family of tumors (ESFT), which includes other peripheral neuroectodermal malignancies [1]. In the U.S., its incidence was 2.93 per million from 1973 to 2004 [2]. ES is marked by frequent recurrence post-surgery and early metastatic spread. While predominantly affecting children and teens, about 30% of cases occur in adults [3]. Treatment is multimodal, involving neoadjuvant chemotherapy, surgical resection, adjuvant chemotherapy, and occasionally radiotherapy. Anthracycline-based regimens are standard, with newer drugs like pazopanib, eribulin, and trabectedin under investigation [4].

This case underscores the impact of the pandemic on oncology care. This report details a 58-year-old man presenting with a foot tumor, back pain, and left leg discomfort.

Materials and Methods

Following a chest X-ray detecting a lung mass, the patient was referred to the Pulmonology Department. Diagnostic workup included chest CT, AP and oblique foot radiographs, PET scan, bronchoscopy, transthoracic fine-needle biopsy, and histopathological analysis. Treatment options and the disease's severity were discussed with the patient.

Case report

A 58-year-old male, a heavy smoker (140 pack-years), road worker with no comorbidities, was admitted after a chest X-ray revealed a lung mass. Five months prior, in April 2020, he experienced weakness, reduced exercise

Access this article online

Website: https://smerpub.com/ **E-ISSN: 3108-4834**

Received: 18 February 2022; **Revised:** 27 May 2022; **Accepted:** 29 May 2022

How to cite this article: Mojsak D, Dębczyński M, Kuklińska B, Mróz RM. Ewing's Sarcoma in a 58-Year-Old Man: Challenges of Cancer Diagnosis During the COVID-19 Era. Arch Int J Cancer Allied Sci. 2022;2(1):37-41. https://doi.org/10.51847/J1EMRn8tE2

capacity, back pain, left foot pain, and swelling, preventing him from wearing shoes, along with right upper limb pain. An outpatient chest X-ray showed an 88 x 70 mm circular opacity in the right lung's lower field, with smaller opacities at the right diaphragmatic-costal angle (**Figure 1**).

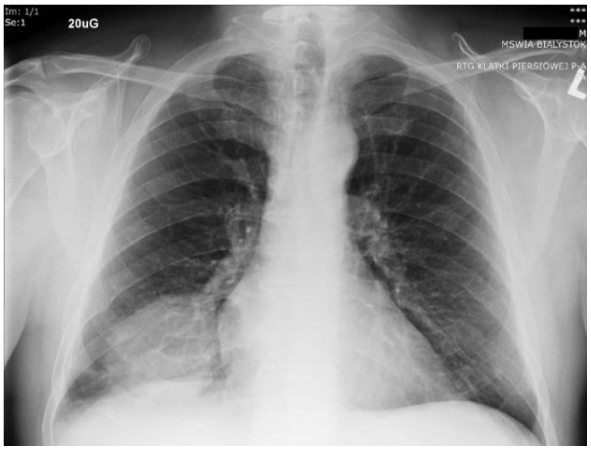
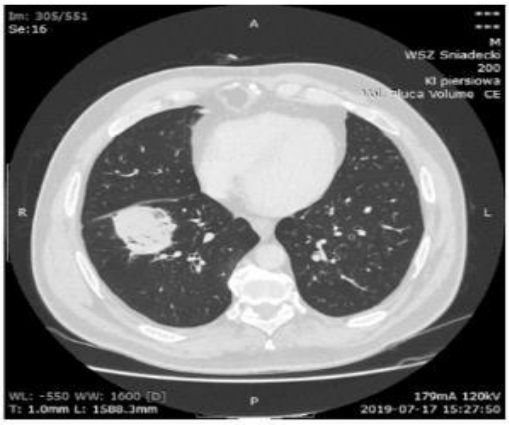


Figure 1. Chest X-ray PA showed an 88 x 70 mm circular opacity in the right lung's lower field with small opacities at the diaphragmatic-costal angle

Referred to the Pulmonology Department, a July 2020 chest CT confirmed a 52 x 64 mm tumor in segment 8 (**Figures 2a** and **2b**).

a)



b)

Figure 2. Chest CT with contrast showing a 52 x 64 mm tumor in segment 8.

Fear of SARS-CoV-2 infection deterred the patient from visiting the hospital, as the nearest facility was converted into a COVID-19 center, and public transport to a regional hospital posed infection risks. By August, a growing foot tumor prompted him to seek care. On admission, he reported right upper limb pain, weakness, and difficulty wearing shoes due to the foot tumor, with no dyspnea or cough. Physical examination noted reduced vesicular sounds in the right subscapular region and a left foot tumor (**Figure 3**).

Figure 3. Tumor on the left foot

Foot radiographs (AP and oblique) revealed osteolysis of the 2nd and 3rd metatarsal bones and 2nd proximal phalanx with soft-tissue edema, suggestive of metastasis (**Figures 4a** and **4b**). Histopathology of tumor samples showed small round neoplastic cells forming rosette-like structures with myxoid stroma, expressing CD99, panCK, and synaptophysin, consistent with sarcoma.

a)

b)

Figure 4. AP and oblique foot radiographs showing lysis of the 2nd and 3rd metatarsal bones and 2nd proximal phalanx

A PET scan identified a 67 x 77 mm hypermetabolic tumor abutting the diaphragm, with metastases to the lungs, right hilum, mediastinal, left external iliac, and inguinal lymph nodes, and multiple bones, including the left foot. Bronchoscopy revealed bronchial compression in segments 8, 9, and 10 on the right. A CT-guided transthoracic biopsy confirmed metastatic small round cell neoplasia in the lung (**Figure 5**). The procedure caused a pneumothorax affecting all right lung lobes (**Figure 6**). After transfer to Thoracic Surgery, the patient declined further treatment, citing fear of SARS-CoV-2, and discharged himself. Contact was subsequently lost.

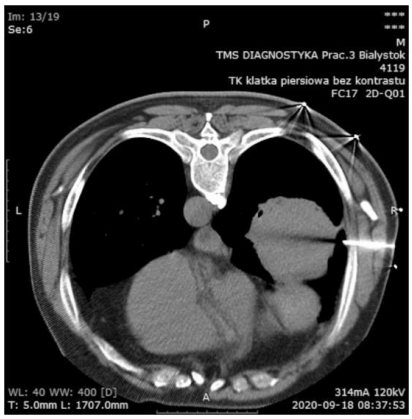


Figure 5. A transthoracic fine-needle biopsy of the tumor under CT control

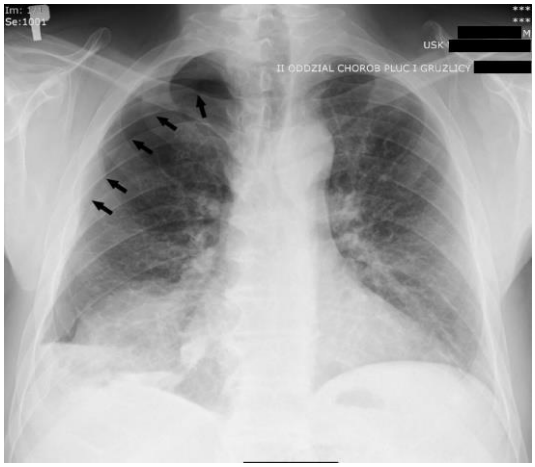


Figure 6. Chest X-ray PA - pneumothorax covering all lobes of the right lung

Results and Discussion

This case describes a 58-year-old man with disseminated Ewing's sarcoma, a malignancy uncommon in adults [3]. Typically affecting the pelvis, axial skeleton, or femur, Ewing's sarcoma can involve nearly any bone or soft tissue. At diagnosis, only about 25% of patients present with overt metastases, but subclinical dissemination is likely universal, as 80–90% relapse after localized treatment alone [5]. The tumor causes osteolytic destruction, weakening bones and risking pathological fractures. The presence of distant metastases significantly worsens prognosis [6]. In this patient, the disease was extensive, involving the spine, left scapula, right humerus, right 5th rib, both hips, left femur, left tibia, left calcaneus, and a 67 x 77 mm right lung tumor, alongside smaller lung nodules and lymph node metastases in the right hilum and right inferior paratracheal regions. The clinical presentation was atypical, with moderate back and right upper limb pain dominating, while the lung mass, identified on chest X-ray, prompted the initial referral.

The diagnostic process revealed critical insights into the tumor's behavior and extent. Radiographic findings of osteolysis in the left foot, coupled with the PET scan's detection of widespread hypermetabolic lesions, underscored the aggressive metastatic nature of Ewing's sarcoma. Histopathological analysis confirmed the characteristic small round cell morphology with rosette-like structures, and immunohistochemical positivity for CD99, panCK, and synaptophysin aligned with the sarcoma's diagnostic profile. The lung tumor's metastatic origin was verified through biopsy, despite

complications like pneumothorax, highlighting the challenges of invasive diagnostics in advanced disease. The patient's refusal of further treatment after transfer to thoracic surgery reflects the profound psychological barriers posed by the pandemic, particularly fear of SARS-CoV-2 exposure, which ultimately interrupted care continuity.

This case also illuminates the broader impact of the COVID-19 pandemic on oncological care. Restricted access to primary and specialist care delayed hospitalization until severe symptoms, such as the visible foot tumor, emerged [7]. Specialized referral networks, like those in France, have been shown to enhance outcomes for rare cancers by facilitating early expert consultation [8]. However, the patient's hesitation to seek care—driven by the local hospital's conversion to a COVID-19 facility and concerns about infection risk during travel—exacerbated the diagnostic delay. Public health measures, such as suspending routine cancer screenings (e.g., mammography, colonoscopy), aimed to preserve healthcare resources but increased the risk of late-stage diagnoses [9]. For instance, endoscopy volumes plummeted by 90% in April 2020 compared to earlier months, with diagnostic capacity remaining limited post-lockdown [10, 11]. Additionally, healthcare worker fatigue, insomnia, and anxiety during the pandemic likely compromised care quality [12].

Maringe *et al.* [13] projected that COVID-19-related diagnostic delays could result in 3,291–3,621 avoidable cancer deaths in England across breast, colorectal, lung, and esophageal cancers, with 59,204–63,229 years of life lost. These findings likely extend to rare malignancies like Ewing's sarcoma, where timely diagnosis is critical. The absence of comprehensive studies on the pandemic's long-term effects on rare cancers underscores the need for further research to quantify this impact and develop strategies to mitigate delays in diagnosis and treatment.

Conclusion

Effective cancer treatment, including for lung cancer and Ewing's sarcoma, depends on streamlined healthcare systems. The COVID-19 pandemic has disrupted timely diagnosis, risking disease progression and limiting treatment options. Both clinicians and patients must remain proactive in addressing potential cancer symptoms. Fear of SARS-CoV-2 cannot justify delays in diagnostic testing or avoiding healthcare, as delayed diagnosis may preclude optimal treatment and worsen outcomes.

Acknowledgments: None

Conflict of Interest: None

Financial Support: None

Ethics Statement: None

References

1. Granowetter L, West DC. The Ewing's sarcoma family of tumors: Ewing's sarcoma and peripheral primitive neuroectodermal tumor of bone and soft tissue. Cancer Treat Res. 1997;92:253-308. doi:10.1007/978-1-4615-5767-8_9
2. Esiashvili N, Goodman M, Marcus RB Jr. Changes in incidence and survival of Ewing sarcoma patients over the past 3 decades: Surveillance Epidemiology and End Results data. J Pediatr Hematol Oncol. 2008;30(6):425-30. doi:10.1097/MPH.0b013e31816e22f3
3. Glass AG, Fraumeni JF Jr. Epidemiology of bone cancer in children. J Natl Cancer Inst. 1970;44(1):187-99.
4. Nakamura T, Asanuma K, Hagi T, Sudo A. Clinical Outcome of Systemic Treatment for Advanced Soft Tissue Sarcoma: Real-Life Perspective in Japan. Drug Des Devel Ther. 2020;14:4215-20. doi:10.2147/DDDT.S275526
5. Nesbit ME Jr, Gehan EA, Burgert EO Jr, Vietti TJ, Cangir A, Tefft M, et al. Multimodal therapy for the management of primary, nonmetastatic Ewing's sarcoma of bone: a long-term follow-up of the First Intergroup study. J Clin Oncol. 1990;8(10):1664-74. doi:10.1200/JCO.1990.8.10.1664
6. PDQ Pediatric Treatment Editorial Board. Ewing Sarcoma and Undifferentiated Small Round Cell Sarcomas of Bone and Soft Tissue Treatment (PDQ®): Health Professional Version. In: PDQ Cancer Information Summaries. Bethesda (MD): National Cancer Institute (US); 2022.
7. Tiwari V, Sharma PK, Sampath Kumar V, Poudel RR, Meena S, Banjara R. Changes in the Management of Malignant Bone Tumors in the COVID-19 Pandemic in Developing Countries.

Cureus. 2022;14(5):e25245. doi:10.7759/cureus.25245

8. Fayet Y, Coindre JM, Dalban C, Gouin F, De Pinieux G, Farsi F, et al. Geographical Accessibility of the Sarcoma Referral Networks in France. Intermediate Results from the IGéAS Research Program. Int J Environ Res Public Health. 2018;15(10):2204. doi:10.3390/ijerph15102204
9. Miranda DLP, Nogueira-Rodrigues A, Fagundes TP, Albuquerque RM, Landeiro LCG. COVID-19 threatens to cause collateral delay in cancer diagnosis. Sao Paulo Med J. 2020;138(4):347-8. doi:10.1590/1516- 3180.2020.033730062020
10. Richards M, Anderson M, Carter P, Ebert BL, Mossialos E. The impact of the COVID-19 pandemic on cancer care. Nat Cancer. 2020:1-3. doi:10.1038/s43018-020-0074-y
11. The Lancet Gastroenterology Hepatology. Resuming bowel cancer screening post-COVID-19. Lancet Gastroenterol Hepatol. 2020;5(8):711. doi:10.1016/S2468-1253(20)30200-4
12. Dong HS, Gao JJ, Dong YX, Han CX, Sun L. Prevalence of insomnia and anxiety among healthcare workers during the COVID-19 pandemic in Jilin Province. Braz J Med Biol Res. 2021;54(9):e10602. doi:10.1590/1414-431X2020e10602
13. Maringe C, Spicer J, Morris M, Purushotham A, Nolte E, Sullivan R, et al. The impact of the COVID-19 pandemic on cancer deaths due to delays in diagnosis in England, UK: a national, population-based, modeling study. Lancet Oncol. 2020;21(8):1023-34. doi:10.1016/S1470-2045(20)30388-0